

Management of Intellectual Property Rights in R&D Organisations

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Abstract : Intellectual Property Rights involve the administration of all phases of management from the original concept of invention to the final commercialisation of the invention. The Intellectual Property (IP) assets are one of the most powerful tools for meeting business objectives and an important factor in the development of national economy. The assessment of the value of IP assets is necessary to facilitate investment in Industry. This article provides IP management and Strategy in a company or R&D organisation, some basic methods for evaluation of IP assets are discussed.

Keywords : *Intellectual Property, IP assets, Intellectual Property Management, IP Evaluation.*

INTRODUCTION

Intellectual property is an intellectual creation of mind. It is similar to the movable or immovable properties like house or car, wherein the proprietor or owner may use his property as he wishes and nobody else can lawfully use his property without his permission. The intellectual property is protected and governed by appropriate national legislation. The national legislation specifically describes the inventions which are the subject matter of protection and those which are excluded from such a protection. For a R&D organisation these Intellectual Property (IP) Assets are powerful tools to enhance profit margins in competitive global market. It play a significant role in providing incentives for innovation, product development and technology change. The protection of Intellectual property rights promote

investment⁽¹⁾ in knowledge creation and business development by establishing exclusive rights to use and sell newly developed information, product and services.

Components of Intellectual Property

Intellectual property is an intangible assets created by human intellectual for which government will grant protection. It covers traditional areas of legal protection known as Patent, Copyright, Trade Marks and Trade Secrets⁽²⁾. Each involves separate bodies of law that extend protection to inventors and creators of unique expressions to certain business identities. A brief description of important Intellectual Property Assets and their overlapping relation is shown in Fig. 1.

Patents

A patent is a legal monopoly which is granted for a limited time by a country to the owner of an invention. An invention is patentable if it involves non-obviousness & has inventive step(s). A patent obtained in one country is not enforceable in any other country unless the patent has been granted in that country. Patent rights are therefore territorial in nature and inventors/their assignees have to file separate patent applications in different countries for obtaining patents in those countries.

Copyrights

A copyright is basically, the right to copy and make use of literary, dramatic, musical, artistic works, cinematographic films records and broadcast.

Trade Marks

A trade mark is a visual symbol in the form of a word, a device or a label as applied to an article of manufacture or commerce with a view to indicate to the purchasing members of the good affixed with such a mark. It facilitates to distinguish such goods from the goods manufactured by others in the trade.

Trade Secrets

There are three elements for a trade secret: (i) Novelty, (ii) Value and (iii) Secrecy. In most cases it is defined as any information, typically of a specified type, that provides some competitive advantage to a business and that is not already known to public.

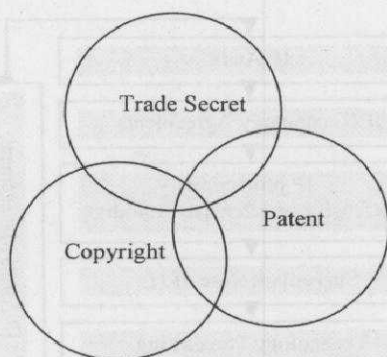


Fig. 1 : Intellectual property assets

Intellectual Property Management

IP management can be divided into two areas⁽³⁾ one is internal and other is external management. The internal management of IP concerns the running of the IP departments which involves IP protection, development of IP assets, confidentiality and IP awareness. The external management concerns interaction with other organisation in relation with Intellectual Property Rights (IPRs) which involves IP information management, licensing and litigation related issues.

Management of IP Assets

IP Assets management involves identifying, perfecting and protecting the appropriate IP Assets. It maximises the return of the IP assets through aggressive, focussed assets management processes. It also assists the short-term and long-term strategic technology development. An effective IP assets management requires defensive and offensive actions. The Fig. 2 shows the flow chart of IP asset management. It shows that IP audit is one important tools for providing a snapshot of a company's and R&D organisations IP portfolio for a single, short term objective. The surveillance process involves to analyse the situation and IP review. The licence agreement protects and fully exploit the company's or R&D organisation's patent or technology. IP litigation management program entails a careful analysis and full assessment of company or R&D organisation. We discuss the defensive or offensive action of IP Assets management.

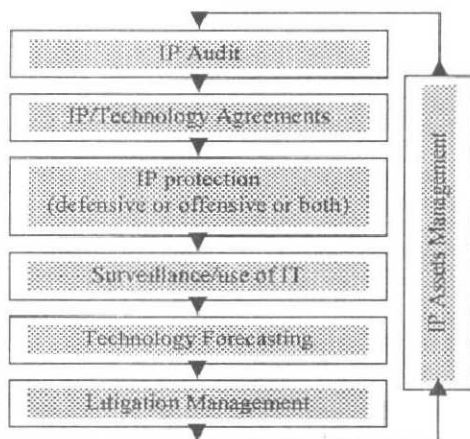


Figure 2 : IP assets management

Defensive Management

Defensive IP management includes searches of prior information for every new IP protection. It makes a good economic sense for a company or R&D organisation to complete IPRs review before committing a substantial amount of time and money to major R&D or technology innovation/initiatives. This will reduce the extra expense and inconvenience, yet the new product or process developed may be halted because of infringement due to existing patent or literature or publications available. The extra care before and after the technology initiative may clear the non-obviousness of the invention, thereby making patenting more simpler and leading to effective IP asset management.

Offensive Management

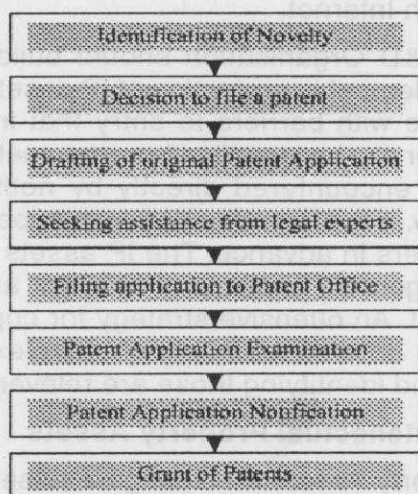
For new and important invention, it is better to take offensive action for IP protection. For example, in case of filing patent one important steps is to submit invention disclosures. To disclose the invention it is necessary to examine what to be describe the applications for providing the protection. Since every scientist or engineer do not have patent lawyer, a robust invention disclosure is necessary for preparing a comprehensive patent application⁽⁴⁾.

In general defensive action of IP assets management is followed for related inventions and for new and novel inventions, offensive action is adapted by way of invention disclosures

Intellectual Property Strategy

IP strategy involves both IP law and business strategy. It can be defined as⁽³⁾ 'the use of IP, either alone or in combination with other resources of the firm, to achieve the firm's strategic objectives'. IP strategy can be split into internal and external function, so IP management can be split into Tactical and Strategic issues, the former largely the concern of IP lawyers and the latter of IP manager. The strategic aspect of IP management can be split into two parts, one is proactive and other is reactive part. Litigation involving other companies, whether due to infringement of a company's IPRs or infringement by the company of other's IPRs which is primarily reactive component of the companies IP strategy. The proactive component consists licensing to and from other companies, and learning from other company's IPRs.

It is important to identify the IP assets and establish the scheme for protection form for inventions and creations of a company or R&D organisation. For patent the step for filing patent application⁽⁵⁾ is shown in Fig. 2.



Target markets should be profiled in terms of size, economic viability, and growth potential, by considering such elements as relevant competition in domestic and international market, prospective entrants, and competitors' proprietary positions. These

analysis may be short and long term. For example, when most patents in a particular field are improvement patent, this may give signal that the field is closed and that competitors, for the most part, recognise the patent positions of current segment participants. This is case patent protection whenever possible and as early as possible. In some other industries, competitors may hold several patent covering products but have few directed to manufacturing processes. In this situation, the prescribed tactic is to focus on trade secret protection for proprietary processes.

Once the target market is defined, it becomes easier to choose the form of legal protection for developing IP assets. These decisions are crucial for using IP assets to create legally valid barriers to entry for competitors in the target market.

The Company or R&D organisation should adopt a definite IP policy which involves setting up a protocol for obtaining access to inventions as they appear and screening them for potential product development. The company must maintain a global watch on competitor's IP positions by monitoring trend in legislation and technology and the patent information as when it is published or search through Internet.

The company/R&D Organisation should build a offensive IP strategy and implement in protection of IP assets is determining how best to cope with barriers to entry that impede business expansion. Barrier can be identified from the analysis of the target marketplace, or encountered directly by notification of legal action. Obviously, it is preferable and less expensive to identify the indirect barriers in advance. The IP assets analysis should include an infringement analysis of relevant assets already in the target market. An offensive strategy for coping with barrier to entry involves an understanding of complex barrier that do and can exist, and identifying those are relevant.

Evaluation of Intellectual Property Assets

Intellectual Property Assets are intangible assets. It is therefore the determination of their value is not clear as that of tangible assets. As result, the evaluation of the true value of the intellectual property assets is sometime is very difficult. Since the last three decades there is a dramatic jump in the assets infrastructure of company. In a survey it has been found that IP assets from 20% of

the total assets of companies in 1978, in 1988 it become 45% and in 1998 it exceeded 80%.

Price Water House Corp.'s quarterly 'Technology Barometer'⁽⁶⁾ captures the views of 462 top industry executives. It highlights 53% reported a great many IP assets, another 26% have some IP assets,

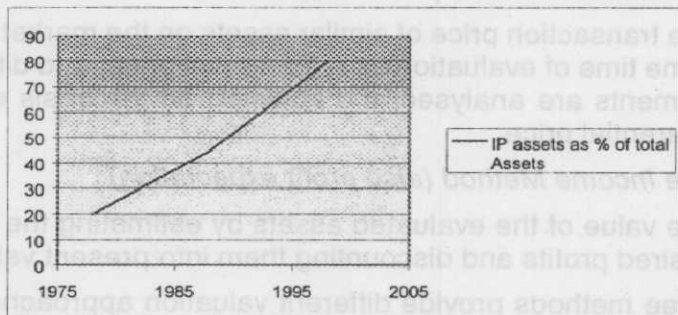


Figure 3 : Growth of IP assets

14% have few IP assets and 7% have none. Technology business leader reported that 51% of revenue may be attributed to their IP assets, for large business 56% and for small business 46%.

Therefore the intellectual property assets must be viewed as one of the most powerful tools for meeting business objectives and an important factor in the development of national economy of various countries and in international trade.

With the development of technology and world economy, technology transfer has become more common both within and across international boundaries. However, without proper methodologies for assessment of value of intellectual property assets, which are acceptable to both the licensor and licensee, they will hesitate to conclude a technology transfer agreement. The licensing negotiations can be successful only when both sides are aware of the value of the targeted technology. Therefore, assessment of the value of IP Assets can facilitate technology transfer.

Methods for evaluation of Intellectual Property Assets

Three methods are used in evaluating IP assets in China⁽⁷⁾ are discussed here. These methods are frequently adopted in China and found helpful for evaluation of IP Assets.

– *The Cost Method (R&D Investment)*

The value of evaluated assets is determined by subtracting all the depreciation from the replacement or reproduction cost of the same assets

– *The Market Method (also comparison)*

The transaction price of similar assets on the market at the same time of evaluation as a referential price, and different elements are analysed and adjusted on the basis of that referential price.

– *The Income Method (also profit expectation)*

The value of the evaluated assets by estimating the future desired profits and discounting them into present value.

The three methods provide different valuation approaches according to different philosophies. The cost method determines the value by way of the historical cost of forming the assets. The cost method is often not accepted in practice as the R&D expenses are often not proportion to the market success of the technology developed. The market method determines the value by way of the present transaction price in the market. So this method is chosen particularly when the transaction price of the same or similar assets is known. Unfortunately, such prices are often not available. It is, therefore, true that the market method has restricted use.

The income method determines the value by way of the future possibilities of obtaining profits. The IP assets may be regarded as a certain amount of capital deposited in bank. The income of industrial property assets is influenced also by other different factors such as management and production process, market and currency factors, etc. Therefore it has some risk factor. For this sake, the income from the investment in industrial property should be higher than the interest drawn from the bank for the same amount of capital. Thus we may take the present value obtained by discounting the future income of the IP assets at a discount rate higher than bank interest rate as the value of the industrial property assets, which may determine by the formula⁷ :

$$V = \sum_{t=1}^n \frac{R_t}{(1+i)^t}$$

- V : value of the assets
 R_t : income of the industrial property assets in year t
 t : certain year in the future
 n : term during which may be produced
 i : discount rate

Therefore, the value of the IP assets is the function of three unknown factors, viz, the amount of the income in the years followed, the discount rate and the term during which income may be produced.

The amount of income refers to the future profit that the IP assets may produce in the years to come. In other words, the deciding of the amount of income has to be based on predictions. So, the principle of prediction is a principle we may follow.

The discount rate is generally three-fold, including the risk-free rate, risk-taking rate and inflation rate. The risk-free rate refers to the lowest return rate obtained from investment by investors. The risk-taking rate is the ratio from risk-taking on assets. As far as the inflation rate is concerned, if the expected amount of profit does not reflect or does not completely reflect the effect of inflation, the discount rate does not necessarily need to contain the inflation rate.

To decide the term during which income may be produced is another important work in evaluating the industrial property assets, since the profit amount is closely related with term. In the case of the exploitation of inventions, profit may grow with market penetration until a saturation is reached. Competitors will be left behind at this first time due to economy of scale effect. Then, however, competitors will catch up and technology will become more and more obsolete, and profit will decrease.

CONCLUSIONS

Innovations are clearly of economic and industrial significance and therefore potentially valuable to the society. Patent, Trade Marks and copyrights are important areas of IP protection legislation. Patent laws provide protection of inventions, demonstrating characteristics of novelty, usefulness, non-obviousness and sufficient disclosure. The grant of patent confers a civil right on the patentee to prevent others from exploiting provisions in

the patent and excluding use for scientific research purposes. It also does not permit the patent owner to exploit his own inventions nor does it confer any right of ownership of patented materials. Attempts to harmonise patent law and practice globally have not yet successful.

Any public disclosure of an invention prior to filing any application is surely against the interest of inventors in the European Countries, whereas in the US one year of grace period is allowed between publication of invention and the deadline for filing a patent application. There should be an effective Indian law which could protect the inventors against any infringement.

Intellectual Property management is a considerable help to the technological development and the IP Assets are valuable resources for Companies/R&D organisations and needing careful management. Awareness of IP assets of other companies/R&D Organisations are also important, both to learn from them as well as to avoid infringement and also to make the best strategic decisions about one's own IPRs. Effective IP management leads to a quality in patents/processes/products developed and have greater marketability for a Company/R&D organisation.

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Abstract: Global market and open competition forced organizations to rediscover the importance of innovative approaches to problem solving. While it is innovation that gives life to technology, trade and development, it is creativity that holds the key to good innovation. The combined and coordinated development of innovation, ability and creativity leads to the success of an innovation. The dawn of the information age has made innovators to look for solution methodology to their problems even in fields that are very different. This has revolutionized the way problems are seen, understood and analyzed. Several innovative problem solving techniques have evolved over the years. The paper aims to present some of the innovative problem solving approaches that have come into existence. The paper also presents some key elements like creativity and innovation, which have now become a part of innovative problem solving approaches.

Keywords: Creativity, innovation, idea, invention, engineering, problem solving, TRIZ.

INTRODUCTION

Most problem solving approaches are based on the premise that solutions lie in the problem itself. There is a natural tendency to solve hitherto unsolved problems either through known solutions, or through the knowledge base acquired over the years or a combination of both, within the problem domain. Therefore the road to development has always been a steady progress from known to unknown. Recent advances in electronics and telecommunication have heralded the dawn of the information